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July 7, 2004

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

**TRANSMITTAL OF INFORMATION DISCLOSURE STATEMENT**

Mail Stop Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Re: U.S. Patent Application No. 10/821,407 filed 04/08/04  
Applicant: Johnson et al.  
Title: **BREAST SCANNING SYSTEM**  
Group Art Unit:  
Attorney Docket No. 21763.NP

Sir/Madam:

Transmitted herewith for filing and pursuant to 37 C.F.R. §§ 1.56 and 1.97 is an Information Disclosure Statement.

Enclosed also are the following designated documents, as required under 37 C.F.R. §§ 1.97 and 1.98:

- ☒ Form PTO-1449 list of 24 references submitted for consideration.
- ☐ Legible copies of the listed references or their relevant portions.
- ☒ Legible copies of the listed non-patent documents and foreign documents or their relevant portions are included.
- ☒ Copies of U.S. patents and/or publications are not included pursuant to the Official Gazette Notice, dated Aug. 5, 2003, waiving the requirement of 37 C.F.R. 1.98(a)(2)(i).

- ☐ All English translations of each non-English reference, if any, within the possession, custody, control or availability of anyone designated in 37 C.F.R. § 1.56(c) (see 37 C.F.R. § 1.98(c)).

The following are included within the Information Disclosure Statement if applicable and as required under 37 C.F.R. § 1.98:

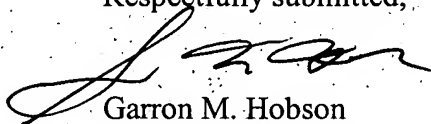
- ☐ Concise explanation of relevance of each reference not in English and unaccompanied by an English translation.
- ☐ Statement that certain listed references not enclosed are substantially cumulative of an enclosed reference.
- ☐ Statement that certain listed references not enclosed were previously cited by or submitted to the Office in prior application no. \_\_\_\_\_, filed on \_\_\_\_\_, which is relied upon for an earlier filing date under 35 U.S.C. § 120.

In order to secure consideration of the items designated above, one or more of the following, if required, is also enclosed:

- ☐ Statement under 37 C.F.R. § 1.97(e)(1) or (2).
- ☐ Check No. \_\_\_\_\_, which includes the amount of \$180.00 (amount in § 1.17(p)) constituting the submission fee set forth in 37 C.F.R. § 1.17(p).

In the event that 37 C.F.R. § 1.97(c) applies and the Examiner is not satisfied that the Statement meets the requirements of 37 C.F.R. § 1.97(e), or in any other event remediable by a fee, please credit any over payment or charge any additional fees to Deposit Account No. 20-0100 of the undersigned.

Respectfully submitted,



Garron M. Hobson  
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GMH/skp



PATENT APPLICATION  
ATTORNEY DOCKET NO. 21763.NP

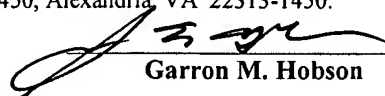
IN THE UNITED STATES PATENT & TRADEMARKS OFFICE

ART UNIT:  
EXAMINER:  
APPLICANT: Johnson et al.  
SERIAL NO.: 10/821,407  
FILED: 4/8/2004  
CONFRM. NO.:  
FOR: BREAST SCANNING SYSTEM

**CERTIFICATE OF MAILING  
UNDER 37 C.F.R. § 1.8**

DATE OF DEPOSIT: July 8, 2004

I hereby certify that this paper or fee (along with any paper or fee referred to as being attached or enclosed) is being deposited with the United States Postal Service as first class mail with sufficient postage on the date indicated above and is addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

  
Garron M. Hobson

**INFORMATION DISCLOSURE STATEMENT UNDER 37 C.F.R. § 1.97**

Mail Stop Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir/Madam:

Please find, pursuant to 37 C.F.R. § 1.98(a)(1), the enclosed Form PTO-1449 which contains a list of all patents, publications, or other items that have come to the attention of one or more of the individuals designated in 37 C.F.R. § 1.56(c). Applicant respectfully submits that this Information Disclosure Statement is filed pursuant to:

☒ 37 C.F.R. § 1.97 (b)(1) or (3), within three months of the filing date of the application, or before a first office action on the merits, whichever occurs last;

☐ 37 C.F.R. § 1.97 (c), after a first office action on the merits, but before a Final Office Action or a Notice of Allowance, whichever occurs first, and is accompanied by either 1) a statement in accordance with 37 C.F.R. § 1.97(e), or 2) the fee set forth in § 1.17(p); or

☐ 37 C.F.R. § 1.97 (d), after a Final Office Action or Notice of Allowance, whichever occurs first, but on or before payment of the issue fee, and is accompanied by both 1) a statement in accordance with 37 C.F.R. § 1.97(e), and 2) the fee set forth in § 1.17(p).

While no representation is made that any of these references may be "prior art" within the meaning of that term in accordance with 35 U.S.C. §§ 102 or 103, the enclosed list of references is disclosed so as to comply with the duty of disclosure set forth in 37 C.F.R. § 1.56.

Moreover, while no representation is made that a specific search of office files or patent office records has been conducted or that no better art exists, the undersigned attorney of record believes that the references listed, together with any other references which may have been previously submitted or listed, are the closest to the claimed invention (taken in its entirety) of which the undersigned is presently aware, and no art which is closer to the claimed invention (taken in its entirety) has been knowingly withheld.

☐ A legible copy of each listed U.S. Patent or publication (or relevant portion thereof) which was not previously submitted to, or cited by, the Patent Office is enclosed pursuant to 37 C.F.R. §§ 1.97 and 1.98.

☒ A legible copy of each of the listed non-patent literature and foreign documents or their relevant portions is enclosed.

☒ Copies of cited U.S. patents and/or publications are **NOT** enclosed pursuant to the Official Gazette Notice, dated Aug. 5, 2003, waiving the requirement of 37 C.F.R. § 1.98(a)(2)(i).

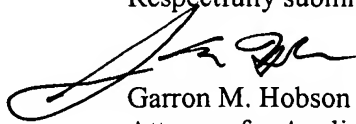
☐ Copies of the references listed in the accompanying Form PTO-1449 are **NOT** enclosed because, under 37 C.F.R. § 1.98(d), they were previously cited by or submitted to the Office in application number \_\_\_\_\_, which is relied upon for an earlier filing date under 35 U.S.C. § 120.

For all listed references that are not either in the English language, or accompanied by a translation into English, a concise explanation of relevance as required under 37 C.F.R. § 1.98(a)(3) is enclosed attached to each.

The Commissioner is hereby authorized to charge any additional fees associated with this communication or to credit any overpayment to Deposit Account No. 20-0100.

Dated this 8 day of July, 2004.

Respectfully submitted,



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GMH/skp  
Enclosure

PTO-1449

U.S. DEPARTMENT OF COMMERCE  
PATENT AND TRADEMARK OFFICEATTY. DOCKET NO.  
21763.NPSERIAL NO.  
10/821,407

## LIST OF PRIOR ART CITED BY APPLICANT

APPLICANT Johnson et al.

FILING DATE  
04-08-04GROUP  
\_\_\_\_\_

## U.S. PATENT DOCUMENTS

EXAMINER INITIALS		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	A1	4,662,222	05-05-87	Johnson, Steven A.			
	A2	5,588,032	12-24-96	Johnson et al.			
	A3	6,005,916	12-21-99	Johnson et al.			
	A4	6,587,540	07-1-03	Johnson et al.			
	A5	6,636,584	10-21-03	Johnson et al.			

## FOREIGN PATENT DOCUMENTS

EXAMINER INITIALS		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO

## OTHER PRIOR ART (Including Author, Title, Pertinent Pages, Etc.)

	A6	P.R. Williamson, "Tomographic inversion in reflection seismology," Geophys. J. Int. 100, pp. 255-274, 1990
	A7	W.W. Kim, D.T. Borup, S.A. Johnson, M.J. Berggren, and Y. Ahou, "Accelerated Inverse Scattering Algorithms for Higher Contrast Objects," in 1987 IEEE Ultrasonics Symposium, 903-906, (IEEE Cat. No. 87ch2492-7)
	A8	S.J. Norton, "Iterative Seismic Inversion," Geophysical Journal, No. 94, pp457-468 (1988)
	A9	T.K. Sarkar, E. Arkas, and S.M. Rao (1986) "Application of FFT and the Conjugate Gradient Method for the Solution of Electromagnetic Radiation from Electrically Large and Small Conducting Bodies," IEEE Trans. Antennas Propagat., vol. AP-34, pp. 635-640, May.
	A10	R.J. Wombel and M.A. Fiddy (1988), "Inverse Scattering Within the Distorted-wave Born Approximation," Inverse Problems 4 (1988).
	A11	Y. Zhou, S.A. Johnson, M.J. Berggren, B. Carruth, and W.W. Kim, "Constrained Reconstruction of Object Acoustic Parameters from Noisy Ultrasound Scattering Data," Proc. of the IEEE 1987 Ultrasonics Symposium pp. 897-901 (1987).
	A12	Kostas T. Ladas and A. J. Devaney, "Iterative Methods in Geophysical Diffraction Tomography," Inverse Problems 8 (1992).
	A13	M.J. Berggren, S.A. Johnson, W.W. Kim, D.T. Borup, R.S. Eidsens and Y. Zhou, "Acoustic Inverse Scattering Images from Simulated Higher Contrast Objects and from Laboratory Test Objects," Acoustical Imaging 16, Chicago, Illinois, Jun. 1987.
	A14	Brent S. Robinson and James F. Greenleaf, "An Experimental Study of Diffraction Tomography Under the Born Approximation," Acoustical Imaging 18, No. 18, Jun. 1990.
	A15	M.J. Berggren, S.A. Johnson, B.L. Carruth, W.W. Kim, F. Stenger and P.L. Kuhn, "Performance of Fast Inverse Scattering Solutions for the Exact Helmholtz Equation Using Multiple Frequencies and Limited Views," Acoustical Imaging 15, Halifax, Nova Scotia, Jul. 1986.
	A16	W.W. Kim, S.A. Johnson, M.J. Berggren, F. Stenger and C.H. Wilcox, "Analysis of Inverse Scattering Solutions from Single Frequency, Combined Transmission and Reflection Data for the Helmholtz and Riccati Exact Wave Equations," Acoustical Imaging 15, pp. 359-369, Plenum Press (1987).

PTO-1449

U.S. DEPARTMENT OF COMMERCE  
PATENT AND TRADEMARK OFFICEATTY. DOCKET NO.  
22027.CIP3.CON2SERIAL NO.  
10/615,569

## LIST OF PRIOR ART CITED BY APPLICANT

APPLICANT Johnson et al.

FILING DATE  
07-07-03

GROUP

DATE CONSIDERED

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication with applicant.

## OTHER PRIOR ART (Including Author, Title, Pertinent Pages, Etc.)

A17	E.J. Ayme-Bellegarda and T.M. Habashy, "Forward Ultrasonic Scattering from Multidimensional Solid or Fluids Inclusions Buried in Multilayered Elastic Structures," IEEE Trans. Ultras., Ferro., and Freq. Cont., vol 39, No. 1, Jan. 1992.
A18	E.J. Ayme-Bellegarda, and T.M. Habashy, "Ultrasonic Inverse Scattering of Multidimensional Objects Buried in Multilayered Elastic Background Structures," IEEE Trans. Ultras., Ferro, and Freq. Cont., vol 39, No. 1, Jan. 1992.
A19	J.K. Cohen and F.G. Hagin, "Velocity Inversion Using a Stratified Reference," Geophysics, 50, 11, 1985.
A20	E. Crase, A. Pica, M. Noble, J. McDonald, and A. Tarantola, "Robust Elastic Nonlinear Waveform Inversion: Application to Real Data," Geophysics, 55, 5 (May 1990).
A21	Peter Mora, "Nonlinear Two-dimensional Elastic Inversion of Multioffset Seismic Data," Geophysics, vol. 52, 9, Sep. 1987.
A22	G.S. Pan, R.A. Phinney and R.I. Odom, "Full-waveform Inversion of Plane-wave Seismograms in Stratified Acoustic Media: Theory and Feasibility," Geophysics, vol. 53, 1 (1988).
A23	G.R. Franssens, "Calculation of the Elasto-dynamic Green's Function in Layered Media by Means of a Modified Propagator Matrix Method," Geophys. J.R. astr. Soc. 1983.
A24	B.L.N. Kennett and N.J. Kerry, "Seismic Waves in a Stratified Half Space," Geophys. J.R. astr. Soc. 57, pp. 557-583, 1979.
EXAMINER	DATE CONSIDERED
<p>*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication with applicant.</p>	